IS 7906-3 (1975): Helical compression springs, Part 3: Data sheet for springs made from circular section wire and bar [TED 21: Spring]

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UDC 621-272·272 (083·4)

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Indian Standard

(Reaffirmed 2006)

HELICAL COMPRESSION SPRINGS

PART III DATA SHEET FOR SPECIFICATIONS FOR SPRINGS MADE FROM CIRCULAR SECTION WIRE AND BAR

Springs Sectional Committee, EDC 75; *and* Helical and Torsion Springs Subcommittee, EDC 75 : 1 [Ref : Doc : EDC 75 (2279)]

1. Scope — Gives Data Sheet for processing of orders and queries for the specification for compression springs covered by IS : 7906 (Part II)-1975 'Helical compression springs: Part II Specification for cold coiled springs made from circular section wire and bar' and IS : 7906 (Part V) 'Helical compression springs: Part V Specification for hot coiled springs made from circular section bar' (*under preparation*).

2. Designation — The standard Data Sheet (*see* P 2) for the compression springs shall be printed in A4 size [*see* IS : 696-1972 'Code of practice for general engineering drawings (*second revision*)'] on transparent sheets and shall be designated as:

DATA SHEET IS : 7906 (Part III)

3. Procedure for Use of Data Sheet

3.1 It may not always be necessary to give all the data provided in the Data Sheet. Initially only those parameters that are required for the use of spring may be given. The parameters that are not necessary for the working of spring can be bracketed. The bracketed parameters are not toleranced, for example, the spring rate S_c.

3.2 The Data Sheet can generally be used for all types of compression springs. If a separate drawing is attached to the Data Sheet, mention of the drawing shall be made in the item 13 of the Data Sheet. If different or additional dimensions are to be specified in special cases, this can be done in the diagram in the Data Sheet itself.

3.3 The data on material and permissible shear stress and on tolerances depend on type of production which is determined by the size of the spring.

3.4 Compression springs made of wires of diameter up to 17 mm are generally cold-formed.

3.5 Compression springs made with bars of diameter more than 17 mm are generally hot-formed but springs made from wire and bar between 10 and 17 mm can also be hot-formed. For this manufacturer should be consulted for process, tolerances, etc. The process generally depends on the load, function of the spring and the material.

3.6 To allow economical manufacture of springs, the maximum possible tolerance according to IS : 7906 (Part II) shall be specified for the coil diameter D_o, D_1 or D_m, the unloaded length L_0 and axial loads F_1 to F_m and deviations e_1 and e_2. The complimentary adjustment for manufacturing as described in 6 of IS : 7906 (Part II) - 1975 shall be applied.

3.7 Indication shall be made whether the spring has to work with guides. For this purpose the outer or inner diameter of guide shall be mentioned in the drawing. This is particularly important for compression springs which work in a guide, since even in block position of the spring there should still be a play between the spring and the guide.

Adopted 30 December 1975

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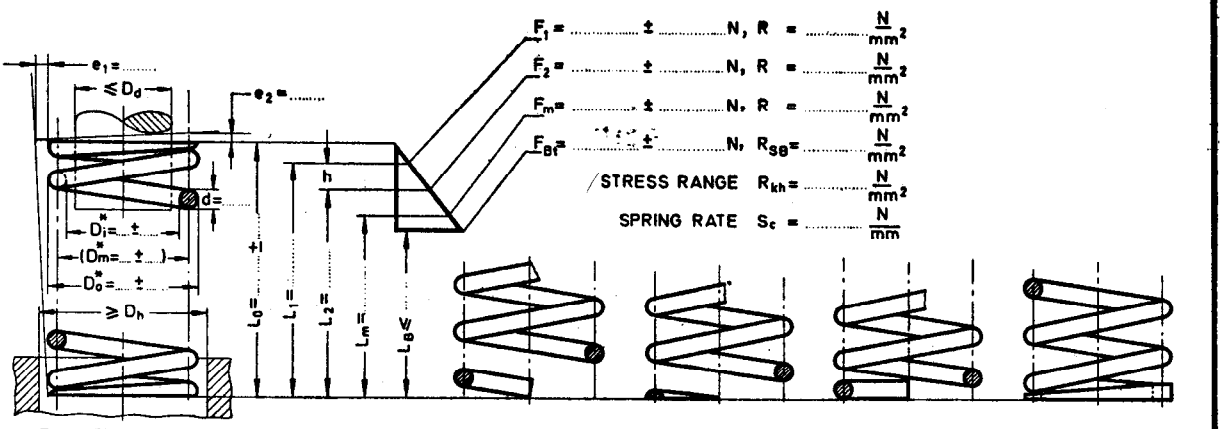

FIG.1 ENDS CLOSED ○ AND GROUND

FIG.2 ENDS OPEN ○ AND UNGROUND

FIG.3 ENDS OPEN ○ AND GROUND

FIG.4 ENDS CLOSED ○ AND UNGROUND

FIG.5 ENDS TAPERED ○ BEFORE COILING, CLOSED AND GROUND

GIVE ONLY THOSE PARTICULARS WHICH ARE FUNCTIONALLY IMPORTANT AND CROSS THE APPROPRIATE CIRCLES. AVOID REDUNDANT DIMENSIONING. IN THE CASE OF SHEAR STRESS R, ADD THE APPROPRIATE SUBSCRIPT s OR k AS PER IS:7906 (PART I). FOR REASONS OF ECONOMY THE TOLERANCES SHOULD BE MADE AS LARGE AS POSSIBLE.

1	NUMBER OF WORKING COILS i_f = ... TOTAL NUMBER OF COILS i_g = ...	
2	HAND OF COILING (OPTIONAL)	RIGHT-HAND ○ LEFT-HAND ○
3	CHAMFERING OF SPRING ENDS	OMITTED ○ INTERNALLY WIDTH ....., ANGLE ..... EXTERNALLY WIDTH ....., ANGLE .....
4	STROKE h = ... mm	
5	LOAD CYCLE FREQUENCY n = ... Hz	
6	MAXIMUM WORKING TEMPERATURE = ... °C	
7	WIRE OR BAR SURFACE	DRAWN ○ ROLLED ○ CENTRELESS GROUND ○ SPRING SHOT-PEENED ○
8	SURFACE PROTECTION	
9	MATERIAL ..... ACCORDING TO IS: ..... PERMISSIBLE SHEAR STRESS R_{sp} = ... N/mm²	

		TOLERANCES ACCORDING TO IS:7906 (PART II)	TOLERANCES ACCORDING TO IS:7906 (PART V)
10	D_o^*, D_i^*, (D_m^*)	.....	.....
	L_0	.....	.....
	F_1 TO F_m	.....	.....
	e_1	.....	.....
	e_2	.....	.....
	WIRE OR BAR DIAMETER d	.....	.....

11	COMPLIMENTARY ADJUSTMENT FOR MANUFACTURING	MANUFACTURER'S DISCRETION FOR
	(A) IF ONE AXIAL LOAD F AND THE CORRESPONDING LOADED LENGTH L ARE SPECIFIED	L_0 ○
	(B) IF ONE AXIAL LOAD F AND THE CORRESPONDING LOADED LENGTH L AND UNLOADED LENGTH L_0 ARE SPECIFIED	i_f AND d ○ i_f AND D_o, D_i, (D_m) ○
	(C) IF TWO AXIAL LOADS AND THE CORRESPONDING LOADED LENGTHS ARE SPECIFIED	L_0, i_f AND d ○ L_0, i_f AND D_o, D_i, (D_m) ○
12	TYPE OF END AS PER FIG.	
13	ANY OTHER SPECIAL DETAILS:	

*ANY ONE OF THE COIL DIAMETERS D_i, D_o OR D_m MAY APPEAR

ISSUE	MODIFICATIONS	DATE	NAME

NAME OF FIRM

	NAME	DATE
DESIGNED		
DRAWN		
CHECKED		
STANDARD		
APPROVED		

SCALE

DATA SHEET FOR HELICAL COMPRESSION SPRINGS
IS:7906 (PART III)

DRAWING NUMBER

SHEET

EXPLANATORY NOTE

This standard is one of the series of standards on design calculation and specifications of helical coiled springs. Other standards in this series are:

IS : 7906 (Part I) - 1976 Helical compression springs: Part I Design and calculation for springs made from circular section wire and bar

IS : 7906 (Part II) - 1975 Helical compression springs: Part II Specification for cold coiled springs made from circular section wire and bar

IS : 7906 (Part IV) Helical compression springs: Part IV Guide for selection of standard cold coiled springs made from circular section wire and bar (*under preparation*)

IS : 7906 (Part V) Helical compression springs: Part V Specification for hot coiled springs made from circular section bar (*under preparation*)

IS : 7907 (Part I) - 1976 Helical extension springs: Part I Design and calculation for springs made from circular section wire and bar

IS : 7907 (Part II) - 1976 Helical extension springs: Part II Specification for cold coiled springs made from circular section wire and bar

IS : 7907 (Part III) - 1975 Helical extension springs: Part III Data sheet for specifications for springs made from circular section wire and bar

IS : 7907 (Part IV) Helical extension springs: Part IV Guide for selection of standard cold coiled springs made from circular section wire and bar (*under preparation*)

The duplication of this Data Sheet is allowed. This Data Sheet is so designed that it can also be used as a factory drawing.

In the preparation of this standard considerable assistance has been derived from DIN 2099 Sheet 1 Helical springs made from circular section wire and bar, Specification for tension springs, issued by Deutschen Institut fur Normung (DIN).